

# SCIENCE DATA & INFORMATION FOR TEACHERS

Web 2.0 and Beyond  
July 6, 2009

[Allan.eustis@nist.gov](mailto:Allan.eustis@nist.gov)  
<http://usms.nist.gov>



# OUR AGENDA

- USMS & The Brave New World: Web 2.0
- What do world class scientists think?
- What do you think?
- Keeping the discussion ongoing



# WHAT IS WEB 2.0 ?

- Second generation of web page design that facilitates:
  - Communication
  - Interoperability
  - Information sharing
  - User-centered design

# HTTP://USMS.NIST.GOV



United States Measurement System  
734+ Measurement Needs and counting.

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## Webinar: Biomass Energy Measurement Needs

Date: June 9, 2009 Time: 1:00 PM ET

- Learn about the growing catalogue of biomass measurement needs
- Discuss biomass measurement needs and trends

[Learn More](#)

Join The USMS Community  
Registration is **Free**

### Measurement Needs

(MN) The [Measurement Need \(MN\)](#) is the basis of the information for USMS assessments. Individual Measurement Needs consider the entire path that must be traversed to transform measurement science into effective, efficient tools that can address technical barriers to technological innovation. All Measurement Needs must go through the [Authentication Process](#).

[Submit Measurement Need](#)

### Join Our Community

The [USMS Online Community](#) is a **FREE** meeting space that connects members of the scientific community in need of measurement knowledge.

[Join The Community](#)[Visit Our Blog](#)[Visit Our Forum](#)

### What is the USMS?

The United States Measurement System (USMS) encompasses all private and public organizations that develop, supply, use, or ensure the validity of measurement solutions for the scientific community.

[Learn More About The USMS](#)

### Follow Us on Twitter



### Events and Hot Topics

**JUN****09**

[Biomass Energy Webinar](#)  
Topics will include a brief overview of the USMS, results of the Biomass Sector Specific Assessment...



United States  
Measurement System  
<http://usms.nist.gov>

twitter



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**USMSOffice**

RT @PlanetEureka Time telling  
software for parents and teachers~~  
<http://bit.ly/9JeoH>

about 2 hours ago from Flock in reply to PlanetEureka

RT @allan\_USMS NIST Rev.Handbook 153 Lab Recognition  
Process:Project 25 Compliance (Interop.Comms)<http://bit.ly/8GyFq>

about 2 hours ago from Flock in reply to allan\_USMS

Key NIST EE Louis Costrell dies. <http://bit.ly/dX2H2>

3:59 AM Jul 3rd from web

NIST/NVLAP Lab Accreditation newsletter highlights July 2009  
tutorials <http://bit.ly/2EdV6>

11:56 AM Jul 2nd from web

NIST CSTL 2008 Conference on Biosciences: Accelerating  
Innovation-final presentations and conference material <http://bit.ly/5Tbgn>

Name NIST USMS

Location Gaithersburg, Md.

Web <http://usms.nist.gov>

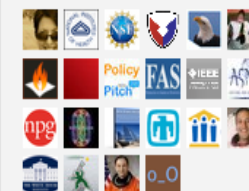
Bio The web site for all things  
measurement.

22 46  
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Updates 45

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Following



RSS feed of USMSOffice's  
updates



# Michael Nielsen Blog

## Michael Nielsen

The future of science

26 Jan 2009 10:35 am

### Doing science online

*This post is the text for an invited after-dinner talk about doing science online, given at the banquet for the [Quantum Information Processing 2009](#) conference, held in Santa Fe, New Mexico, January 12-16, 2009.*

Good evening.

Let me start with a few questions. How many people here tonight know what a blog is?

How many people read blogs, say once every week or so, or more often?

How many people actually run a blog themselves, or have contributed to one?

How many people read blogs, but won't admit it in polite company?

Let me show you an example of a blog. It's a blog called [What's New](#), run by UCLA mathematician [Terence Tao](#). Tao, as many of you are probably aware, is a Fields-Medal winning mathematician. He's known for solving many important mathematical problems, but is perhaps best known as the co-discover of the [Green-Tao theorem](#), which proved the existence of arbitrarily long arithmetic progressions of primes.

Tao is also a prolific blogger, writing, for example, 118 blog posts in 2008. Popular stereotypes to the contrary, he's not just sharing [cat pictures](#) with his mathematician buddies. Instead, his blog is a firehose of mathematical information and insight. To understand how valuable Tao's blog is, let's look at a [example post](#), about the Navier-Stokes equations. As many of you know, these are the standard equations used by physicists to describe the behaviour of fluids, i.e., inside these equations is a way of understanding an entire state of matter.

About

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Essays

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[Science Beyond Individual Understanding](#)

[Why the World Needs Quantum Mechanics](#)

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[The Google Technology Stack](#)

### Project on hold

[Academic Reader](#)

Michael Nielsen

Social software & Future of Science

17 Jul 2008 03:36 pm

## The Future of Science

### Building a better collective memory

In your High School science classes you may have learnt Hooke's law, the law of physics which relates a spring's length to how hard you pull on it. What your High School science teacher probably didn't tell you is that when Robert Hooke discovered his law in 1676, he published it as an anagram, "ceiinoosssttuv", which he revealed two years later as the Latin "ut tensio, sic vis", meaning "as the extension, so the force". This ensured that if someone else made the same discovery, Hooke could reveal the anagram and claim priority, thus buying time in which he alone could build upon the discovery.

Hooke was not unusual. Many great scientists of the age, including Leonardo, Galileo and Huygens, used anagrams or ciphers for similar purposes. The Newton-Leibniz controversy over who invented calculus occurred because Newton claimed to have invented calculus in the 1660s and 1670s, but didn't publish until 1693. In the meantime, Leibniz developed and published his own version of calculus. Imagine modern biology if the human genome had been announced as an anagram, or if publication had been delayed thirty years.


Why were Hooke, Newton, and their contemporaries so secretive? In fact, up until this time discoveries were routinely kept secret. Alchemists intent on converting lead into gold or finding the secret of eternal youth would often take their discoveries with them to their graves. A secretive culture of discovery was a natural consequence of a society in which there was often little personal gain in sharing discoveries.

The great scientific advances in the time of Hooke and Newton motivated wealthy patrons such as the government to begin subsidizing science as a profession. Much of the motivation came from the public benefit delivered by

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# Open Notebook Science



Drexel CoAS E-Learning XML



Tuesday, September 26, 2006

## Open Notebook Science

Thanks to [Beth Ritter-Guth's efforts](#) to clarify the definition of terms relating to Open Source Science, a good discussion has evolved on the [Blue Obelisk mailing list](#). Peter Murray-Rust has made the [point](#) that this term may be confused with Open Source Software. However, as Peter notes in a follow-up post, Jamais Cascio from [WorldChanging](#) has used this definition of Open Source Science, which is fairly consistent with our use of it in [UsefulChem](#):

“...research already in progress is opened up to allow labs anywhere in the world to contribute experiments. The deeply networked nature of modern laboratories, and the brief down-time that all labs have between projects, make this concept quite feasible. Moreover, such distributed-collaborative research spreads new ideas and discoveries even faster, ultimately accelerating the scientific process.

In Open Source Software, the code is made available to anyone to modify and repurpose. What we have been trying to do with UsefulChem is to provide the analogous entity for chemical research, which is raw experimental data along with the researcher's interpretation in a format that anyone can easily re-analyze, re-interpret and re-purpose. A good example of re-purposing is using some results and observations from a failed experiment in a way that was never intended by the original researcher. This just doesn't happen regularly in science because failed experiments are almost never included in publications.

- [Drexel CoAS WIKI](#)
- [EduFrag WIKI](#)
- [CHEM 241](#)
- [CHEM 242](#)
- [CHEM 243](#)



### About

News about E-Learning in the College of Arts and Sciences at Drexel University.



### About Me



**Name:** Jean-Claude Bradley  
**Location:** Philadelphia, Pennsylvania, United States

Coordinator for E-Learning at the College of Arts and Sciences at Drexel University

[View my complete profile](#)



### Previous





**allan\_USMS**

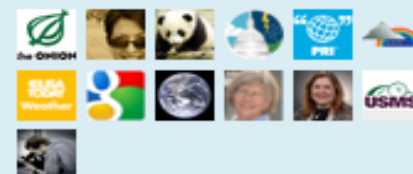
**Name** allan\_USMS  
**Location** Washington DC  
**Web** <http://usms.nist.gov>  
**Bio** Measurement Techie

13 following 12 followers

**Updates** 26

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Friedman 6/27 NYT Column supports doubling R & D dollars for NIST,NSF, DOE <http://bit.ly/8WOux>

15 minutes ago from web

Today in US Weather: Portland Oregon record heat 102 in 1942 <http://bit.ly/34Dxq>

38 minutes ago from web

Researchers say social media essential for national security. <http://bit.ly/2Gt2li>

about 20 hours ago from web

RT USATODAYweather NOAA weather satellite rockets into orbit : <http://tinyurl.com/mrpmy>

about 21 hours ago from web

2009 Nanosoccer World Cup Tournament begins <http://tinyurl.com/3gc4s5> and <http://tinyurl.com/nvzqf5>

about 22 hours ago from web

New ISO Standard ensures wind resistant buildings <http://tinyurl.com/ouj2rg>

about 22 hours ago from web

# 2008 HURRICANE SEASON YOUTUBE ANIMATION





# NIST & Greenhouse Gas Measurement





# Summer Institute Wiki

☆ Meteorological Instructional Aids

[Edit This Page](#)

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## Instructional Aids for Teaching Weather and Climate Concepts

(Note: This page is a follow on to the NIST Science Afternoon Web Pages. You can access these pages from the navigation menu on the left.)



There are some striking weather and climate related images at National Geographic Society's wallpaper [web site](#).

The picture above shows a springtime snow squall approaching Great Falls Montana. Photography of the skies at night can be equally breathtaking. The World at Night Project ([TWAN](#)) documents stunning photographs of the moon, the planets, the stars and the clouds after sunset.

Measurement science is responsible for accurate determination of weather and climate elements. [Experimentation and Measurement](#) is an excellent primer on measurement science, written in 1961 by a NIST scientist, W.J. Youden for the National Science Teachers Association.

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## Learning Tools for Teachers and Students

You Tube Video: [The Coriolis Force](#)

You Tube Video: [Visualization of the Coriolis and Centrifugal Forces](#)

National Weather Service [Glossary](#) of Weather and Climate Terms

Discovery Channel Emergency Preparedness [Ready Classroom](#) for teachers and students

Digital [Library](#) for Earth System Education

National Weather Service Education [Resources](#)

# Summer Institute facebook page

facebook

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Sign Up

Sign up for Facebook to join The Climate Project Official Group.

## The Climate Project Official Group

Global

### Basic Info

Type:

[Organizations - Non-Profit Organizations](#)

Description:

The Climate Project consists of 2,600 dedicated volunteers from throughout the United States, Australia, Canada, India, Spain, and the UK, all personally trained by Al Gore to educate the public about climate change. TCP presenters have reached a combined 4 million people worldwide. Our hope is that by raising the awareness of our fellow citizens about this crisis and informing them about potential solutions, all of us, together, can preserve the climate balance on which humanity and our planet depend.

### Contact Info

Email:

[info@theclimatoproject.org](mailto:info@theclimatoproject.org)

Website:

<http://www.theclimatoproject.org>

Location:

Nashville, TN

### Members

Displaying 8 of 1,761 members



Scott



Vero



Patricia



Rafael



Cathy



Marcelo



Nadine



Melanie

### Discussion Board

Displaying 3 of 5 discussion topics

[See All](#)

#### mr. gore's new book: "our choice"

1 post by 1 person. Updated on March 27, 2009 at 7:13am

#### TCP Pilot Program Seeks Classroom Participants

1 post by 1 person. Updated on February 25, 2009 at 7:55pm

#### Fostering a dangerous climate of addiction

1 post by 1 person. Updated on February 7, 2009 at 2:55am

### The Wall



### Group Type

This is an open group. Anyone can join and invite others to join.

### Officers

Jenny  
Executive Director

Carrie  
Director of Communications

Tami  
Director of Community Support

Raj  
Manager of School Programs

Katy  
Production Manager

Marisa  
Logistics and Events Coordinator

### Admins

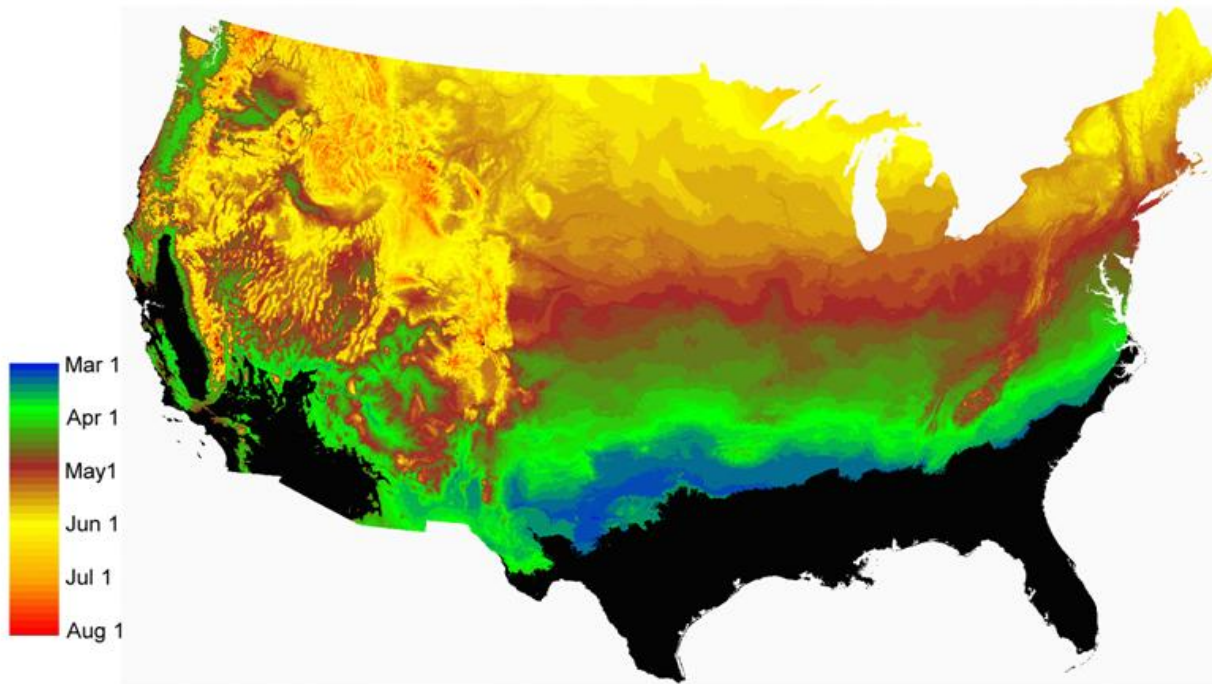
- Laurie
- Carrie
- Marisa
- Katy



# “TO MEASURE IS TO KNOW”

Lord Kelvin

1996 SI First Bloom Dates



Spring Index (SI) First Bloom dates (SI is a model that simulates average lilac/honeysuckle first bloom dates from daily maximum-minimum temperature data) for 1996 at 1 km resolution using Daymet data for the USA. Areas in black are locations where lilac (*Syringa chinensis*) does not grow. Notice how the time of first bloom proceeds fairly regularly northward in east-west bands across the central USA, but is affected by mountain ranges in the East and Northeast (Appalachians and Adirondacks), and then becomes much more complex due to the numerous mountain ranges and other elevation differences in the West. Thanks to M. White for producing the SI model output underlying this graphic. For more information on the Spring Indices models see Schwartz et al. 2006 and Schwartz 1997.



# Your thoughts and questions

